



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/732,761	12/10/2003	John C. Lazenby	2003P12083US	6561

7590 04/07/2006
Siemens Corporation
Intellectual Property Department
170 Wood Avenue South
Iselin, NJ 08830

EXAMINER

DOUGHERTY, THOMAS M

ART UNIT PAPER NUMBER

2834

DATE MAILED: 04/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/732,761

Applicant(s)

LAZENBY, JOHN C.

Examiner

Thomas M. Dougherty

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 11-16 and 24-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-10 and 17-22 is/are rejected.
- 7) ☒ Claim(s) 7 and 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1203 and 106.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5, 6, 8 and 17-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Bradley et al. (US 6,312,379). Bradley et al. show (figs. 1-3) a method for controlling a transmit spectrum in medical imaging, the method comprising: (a) transmitting at least three waveforms from three elements (see col. 6, ll. 27-36) respectively, in a transmit event; (b) applying relative focusing delays or phase shifts to the at least three waveforms for (a), see 32 in fig. 2; and (c) applying additional delays or phase shifts (via clocked component 36) between the at least three waveforms for (a) such that each of the at least three waveforms is associated with a different amount of delay or phase shift in addition to the focusing delays or phase shifts. Note that at col. 7, lines 16-24 that each waveform is scaled and further at lines 26-34 that delays are stored in memory.

(b) comprises applying relative focusing delays and wherein (c) comprises applying additional delays.

(a) comprises transmitting the at least three waveforms wherein each of the waveforms has fewer than seven amplitude levels. Again see col. 6, ll. 27-36 and note in figs. 19 and 20 or 23 and 24 that the signals are unipolar.

(a) comprises transmitting unipolar waveforms.

(d) repeating (a), (b) and (c) for the transmit event across an array of elements including the three elements. This is obvious for a continuous operation of the device.

(a) comprises transmitting four waveforms, wherein (b) comprises applying to the four waveforms, wherein (c) comprises adding four different delays or phase shifts respectively to the four waveforms in addition to the relative focusing delays or phase shifts. Note the plurality of M-1 delay lines in fig. 2, in which it is implicit that there may be four different waveforms.

As noted in the discussion above, Bradley et al. note, a method for controlling a transmit spectrum in medical imaging, the method comprising: (a) transmitting at least two waveforms from two elements, respectively, in a transmit event; (b) applying relative focusing delays or phase shifts to the at least two waveforms for (a); and (c) applying an additional delay or phase shift and a sign change between the at least two waveforms for (a).

(b) comprises applying relative focusing delays and wherein (c) comprises applying an additional delay. (See discussion above).

(a) comprises transmitting the at least two waveforms wherein each of the waveforms has fewer than seven amplitude levels. (See discussion above)

(a) comprises transmitting one of: bipolar and unipolar waveforms. (See discussion above).

(d) repeating (a), (b) and (c) for the transmit event across an array of elements including the two elements. (See discussion above).

Claims 1-6, 8-10 and 17-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Napolitano et al. (US 2003/0018253 A1). Napolitano et al. note at paragraph 132 on page 9, and show (figs. 2 and 3 especially) a method for controlling a transmit spectrum in medical imaging, the method comprising: (a) transmitting at least three waveforms (note output from 32 in which each transducer gets a different drive signal) from at least three elements (output of 32) respectively, in a transmit event; (b) applying relative focusing delays or phase shifts to the at least three waveforms for (a); and (c) applying additional delays or phase shifts (see esp. lines 27-31 where it is noted that a focus delay is followed by use of the phase inverter as a delay element) between the at least the plurality of waveforms for (a) such that each of the at least the plurality of waveforms is associated with a different amount of delay or phase shift in addition to the focusing delays or phase shifts, note in fig. 2 that each transmit channel has a separate focus delay (22) and a separate phase inverter (24).

(b) comprises applying relative focusing delays and wherein (c) comprises applying additional delays.

(a) comprises transmitting the at least three waveforms wherein each of the waveforms has fewer than seven amplitude levels

(a) comprises transmitting bipolar waveforms. Again see paragraph 132.

(a) comprises transmitting unipolar waveforms. Again see paragraph 132.

(d) repeating (a), (b) and (c) for the transmit event across an array of elements including the three elements. This is obvious for a continuous operation of the device.

(a) comprises transmitting four waveforms, wherein (b) comprises applying to the four waveforms, wherein (c) comprises adding four different delays or phase shifts respectively to the four waveforms in addition to the relative focusing delays or phase shifts. See figs. 2 and 3.

The different amount of delay in addition to the focusing delays for one of the at least three waveforms is substantially no additional delay. Note at paragraph 132 that the phase inverter does not have to act as a delay component.

(d) inverting at least one of the at least three waveforms. Note the phase inverter, again see paragraph 132.

As noted in the discussion above, Napolitano et al. note, a method for controlling a transmit spectrum in medical imaging, the method comprising: (a) transmitting at least two waveforms from two elements, respectively, in a transmit event; (b) applying relative focusing delays or phase shifts to the at least two waveforms for (a); and (c) applying an additional delay or phase shift and a sign change between the at least two waveforms for (a).

(b) comprises applying relative focusing delays and wherein (c) comprises applying an additional delay. (See discussion above).

(a) comprises transmitting the at least two waveforms wherein each of the waveforms has fewer than seven amplitude levels. (See discussion above)

(a) comprises transmitting one of: bipolar and unipolar waveforms. (See discussion above).

Art Unit: 2834

(d) repeating (a), (b) and (c) for the transmit event across an array of elements including the two elements. (See discussion above).

(c) comprises (c1) inverting a first of the at least two waveforms; and (c2) delaying the first waveform relative to a second of the at least two waveforms by an about one half period delay. Note that this is a relative description which is regarded as being met by Napolitano as he doesn't limit his delays at paragraph 132, ergo, the relative description falls within the aegis of his invention.

Allowable Subject Matter

Claims 7 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art does not show nor suggest the method of the Applicants' claim 6 wherein (c) comprises: (c1) applying an about one quarter period delay to about a first quarter of the elements; (c2) applying an about negative one quarter period delay to about a second quarter of the elements, the first quarter being different elements than the second quarter; and (c3) maintaining about half the elements free of additional delays, the about half being different elements than the first and second quarters. Likewise the prior art does not show nor fairly suggest the method of Claim 21 wherein (a) comprises transmitting three (c1) maintaining about half the elements of the array free of additional delays; (c2) inverting and delaying by about one half a period of a center frequency for about a first quarter of the elements, the first quarter being different

Art Unit: 2834

elements than the half and (c3) inverting and advancing by about one half a period of the center frequency for about a second quarter of the elements, the second quarter being different elements than the first quarter and the half.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The remaining prior art cited reads on some aspects of the claimed invention.

Direct inquiry to Examiner Dougherty at (571) 272-2022.

tmd
tmd

April 5, 2006

Thomas M. Dougherty
TOM DOUGHERTY
PRIMARY EXAMINER